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PHOTOGRAPHIC
INTERPRETATION
REPORT

NATIONAL PHOTOGRAPHIC
INTERPRETATION CENTER

# TEST PROGRAM FOR LARGE ROCKET MOTOR/LAUNCH CANISTER AT PAVLOGRAD SOLID MOTOR TEST FACILITY, USSR

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| INSTALLATION OR ACTIVITY NAME | | | | | COUNTRY |
|---|---|---|---|---|---|
| Test Program for Large Rocket Motor/Launch Canister at Pavlograd Solid Motor Test Facility | | | | | UR |
| UTM COORDINATES | GEOGRAPHIC COORDINATES | CATEGORY | BE NUMBER | COMIREX NO. | NIETB NO. |
| NA | See below | See below | See below | See below | See below |

MAP REFERENCE

ACIC. USATC, Series 200, Sheet 0234-22, scale 1: 200,000

| | NEGATION DATE (If required) |
|---|---|
| | NA |
| REQUIREMENT | NPIC PROJECT |
| FMSAC/AID/STRB C-DS3-87,851 | 251958 |

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| Installation Name | Coordinates |
|---|---|
| Pavlograd Solid Motor Test Facility | 48-26-05N 035-58-17E |
| Pavlograd Rocket Motor Assembly and Test Support Facility | 48-27-30N 035-57-00E |

## ABSTRACT

1. A test program for a large rocket motor/launch canister began at Pavlograd Solid Motor Test Facility in May 1971. Sections of the multisegment motor/canister have been observed at the test facility and at Pavlograd Rocket Motor Assembly and Test Support Facility since that time. A comparable motor/canister and motor/canister sections have also been observed at Tyuratam Missile Test Center.

2. This report includes a diagrammatic drawing of the motor/canister, annotated photographs, and a tabular breakdown of the accumulation of segments at both Pavlograd facilities.

## INTRODUCTION

3. The Pavlograd Solid Motor Test Facility is 7 nautical miles (nm) southeast of Pavlograd, USSR, and has been operational since 1965. The upward-firing test position associated with the large motor/canister has been operational since the summer of 1971. The Pavlograd Rocket Motor Assembly and Test Support Facility, 2 nm northwest of the test facility, was operational in 1965. The Pavlograd facilities are 1,800 nm west of Tyuratam Missile Test Center Tyuratam SSM Complex). 25X1

## BASIC DESCRIPTION

### PAVLOGRAD ROCKET MOTOR/LAUNCH CANISTER

4. A large rocket motor/launch canister was first observed at Pavlograd Rocket Motor Test Facility , aligned with the erector-loader serving upward-firing test position 2. A diagram of the motor/canister is presented in Figure 1 with all obtainable measurements. Figure 1 represents a composite drawing based on all available photographic coverage. Not all of the bands shown in the drawing are observed on all coverages, but two bands are usually seen and are annotated as "prominent bands." It should be noted that the dimensions are not rounded off; this does not reflect increased accuracy in measurement capability, 25X1



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but results from averaging many repetitive measurements from several observations and, particularly, from dividing overall lengths into equal segments. The first motor/canisters observed were and consisted of eight segments, and a top segment. The segment on the top end (as placed in the upward-firing test position) is either a whole segment or consists of two parts, one the same length as the other eight segments and the other

5. A longer version of the motor/canister was first observed at upward-firing test position 2 This version (Figure 1) appeared to have one additional segment added to the top, It has been observed in the same position at the test position on all subsequent missions to date.

6. After testing, the motor/canisters are separated into one-, two-, three-, four-, five-, and six-segment sections. Some sections are left in the test facility, but most are removed and placed in a boneyard (Figure 2) at the Pavlograd Rocket Motor Assembly and Test Support Facility (RMA&TSF). The large size of the segments probably necessitates outside storage and also makes them useful as storage huts. Segments have been observed in the test facility and at RMA&TSF being used for that purpose. A definite pattern of separation has been observed. During the earlier stages of the test program, there were instances of separation into four-segment, three-segment, and two-segment sections. Shortly before and after the appearance of the longer version there were instances of five-segment, three-segment, and two-segment sections. Table 1 presents a detailed chronology of the appearances of these segments at both facilities. A descriptive chronology of the test activity at Pavlograd, based on the appearance and disposition of the motor/canisters and segments, is presented in a later section.

Pavlograd Motor/Canister at Tyuratam Missile Test Center

7. The longer, version of the Pavlograd motor/canister was observed on a special three-car train at Tyuratam Missile Test Center in November 1971 (Figure 3A). The location of the train could not be associated with a specific launch or support area. Debris which can be identified as Pavlograd motor/canister sections appeared at Complex H at Tyuratam during the same period (Figure 3B). The same type of three-car train used to transport the motor/canister at Tyuratam was observed empty in the RMA&TSF at Pavlograd in March 1973.

8. The Tyuratam Missile Test Center is testing at least two new liquid propellant missile systems, designated the SS-X-17 and the SS-X-18.[1] Evidence suggests that these systems may use a sabot or zero-stage launch technique, which may require the use of solid propellants.

TEST ACTIVITY AT PAVLOGRAD

Summer of 1971

9. The first large rocket motor/launch canister was tested in May 1971. Six or seven (a rate of two per month) were tested The estimate of six or seven motor/canisters is based in part on the observation of 27 segments in the test facility. There was no coverage of the RMA&TSF on that date, but 33 segments were observed in the RMA&TSF on the next available coverage, , for a total of 60 segments at the two facilities. It is probable that all of the 33 segments in the RMA&TSF were from the 1971 summer test program, inasmuch as repetitive coverage of the test facility indicates that there was no test activity Although it is possible that the 19 segments came from somewhere other than the test facility, it seems more logical to consider them part of the 1971 summer test program at Pavlograd.

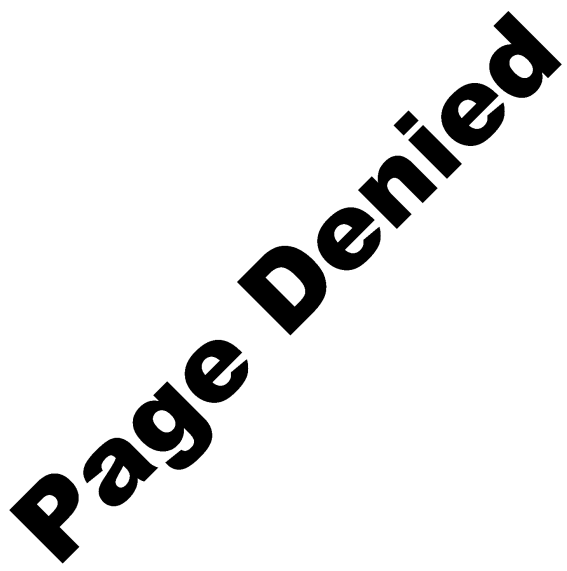

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*Table 1. Accumulation of Segments at Pavlograd Facilities*

| ROCKET MOTOR TEST FACILITY | | | ROCKET MOTOR ASSEMBLY AND TEST SUPPORT FACILITY | | | BOTH FACILITIES |
|---|---|---|---|---|---|---|
| Increase (I) or Decrease (D) From Last Date | Combinations | Cumulative Total | Increase (I) or Decrease (D) From Last Date | Combinations | Cumulative Total | Combined Cumulative Total |
| 9 segs present | 1 9-seg | 9 segs | Not covered | | | 9 segs |
| 5 segs (I) | 1 3-seg | 14 segs | 14 segs present | 1 4-seg | 14 segs | 28 segs |
| | 1 2-seg | | | 2 3-seg | | |
| | | | | 2 2-seg | | |
| 13 segs (I) | 1 9-seg | 27 segs | Not covered | | | 41 segs |
| | 4 1-seg | | | | | |
| No change | | 27 segs | Not covered | | | 41 segs |
| No change | | 27 segs | 19 segs (I) | 2 3-seg | 33 segs | 60 segs |
| | | | | 5 2-seg | | |
| | | | | 3 1-seg | | |
| No change | | 27 segs | No change | | 33 segs | 60 segs |
| 9 segs (D) | 1 9-seg | 18 segs | 9 segs (I) | 1 4-seg | 42 segs | 60 segs |
| | | | | 1 3-seg | | |
| | | | | 1 2-seg | | |
| No change | | 18 segs | No change | | 42 segs | 60 segs |
| No change | | 18 segs | No change | | 42 segs | 60 segs |
| Not covered | | | 24 segs (I) | 2 5-seg | 66 segs | 84 segs |
| | | | | 2 3-seg | | |
| | | | | 4 2-seg | | |
| 6 domes | | 18 segs | 4 segs (I) | 1 2-seg | 70 segs | 88 segs |
| | | | | 2 1-seg | | |
| No change | | 18 segs | No change | | 70 segs | 88 segs |
| Not covered | | | No change | | 70 segs | 88 segs |
| No change | | 18 segs | No change | | 70 segs | 88 segs |
| 13 segs (I) | 1 10-seg | 31 segs | Not covered | | | 101 segs |
| | 1 3-seg | | | | | |
| No change | | 31 segs | Not covered | | | 101 segs |
| No change | | 31 segs | No change | | 70 segs | 101 segs |
| No change | | 31 segs | 10 segs (I) | 1 5-seg | 80 segs | 111 segs |
| | | | | 1 3-seg | | |
| | | | | 1 2-seg | | |
| No change | | 31 segs | No change | | 80 segs | 111 segs |
| No change | | 31 segs | 10 segs (I) | 1 5-seg | 90 segs | 121 segs |
| | | | | 1 3-seg | | |
| | | | | 1 2-seg | | |
| No change | | 31 segs | No change | | 90 segs | 121 segs |
| No change | | 31 segs | Not covered | | | 121 segs |





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Winter of 1971-1972

10. There was no evidence of test activity at Pavlograd during the period from [redacted] This is strongly supported by the fact that a whole motor/canister remained on the only transporter there during this period. One nine-segment motor/canister was transferred from the test facility to the RMA&TSF in February 1972 and separated into four-segment, three-segment, and two-segment sections. No additional segments were observed until April 1972. 25X1

Summer of 1972

11. Six [redacted] domes with holes in their centers appeared in the test facility [redacted] The same type of domes have been seen at Tyuratam along with the previously mentioned debris. During this same period, 28 additional segments were observed at the RMA&TSF. The six domes and the 28 segments indicate that at least three more motor/canisters were tested at Pavlograd during this period. This brought the total tested since May 1971 to at least nine or ten. 25X1 25X1

21 September 1972 [redacted] 25X1

12. There was one test between [redacted], making a total of ten or 11 motor/canisters tested. Between these two dates a ten-segment motor/canister was removed from the test position and placed on the dolly aligned with the erector-loader. It has remained there on all subsequent photography [redacted] indicating there was no test activity at the test facility between [redacted] the cutoff date for information used in this report. There was no increase observed in the number of segments at the RMA&TSF, although there was 25X1 25X1 25X1 25X1

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some of shifting of locations, until March 1973. The equivalent of one ten-segment motor/canister was delivered to the RMA&TSF The equivalent of another ten-segment motor/canister arrived The latter had a dark, burned appearance. This was during a period of inactivity at the test facility, and no segments were transferred. It appears as though these 20 segments came from somewhere other than the test facility. The three-car missile-associated train appeared at the RMA&TSF during this time, on

REFERENCES

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MAPS OR CHARTS

ACIC. US Air Target Chart, Series 200, Sheet 0234-22, scale 1:200,000

DOCUMENT

1. GMAIC. USIB-D-33.4/64, Memorandum for the United States Intelligence Board, 9 Feb 73 (TOP SECRET RUFF ZARF)

REQUIREMENT

Project 251958

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